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Analysis of occupational accident reports of hospital employees applying to the emergency department

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ABSTRACT

Aims: The purpose of this study is to analyze the occupational accidents experienced by all employees working in a university hospital in Turkey. In addition to demographic data, we aimed to analyze according to their titles, professions, type of accident, location of the accident in the hospital, accident day, and time periods.

Methods: In this descriptive research, 'Occupational Accident Forms' of work accidents that occurred within the hospital between 15 August 2022 and 15 August 2023 were analyzed retrospectively. Applications from all hospital staff (both healthcare workers and non-healthcare workers) were included. Categorical variables in the study were shown as frequency (n) and percentage values (%).

Results: The number of work accidents is equal to the number of hospital employees exposed to an occupational accident. According to gender in the study; 51.8% (n=59) were female and 48.2% (n=55) were male. The frequency of singles according to marital status was 57%,(n=65). According to their occupations, nurses came first with 25.4% (n=29), cleaning staff came second with 23.7% (n=27), and doctors came third with 17.5.4% (n=20). The most common days spent on occupational accidents are Friday with 22.8% (n=26). The most common hours were between 08:00 and 16:00 with 64.9% (n=74). According to the units where employees work, Internal medicines first with 32.5% (n=37). The types of injuries; needle and sharp injuries were in the first place with 59.6% (n=68). The most frequently injured part of the body is the upper extremity with 74.6% (n=85) No fatal accident was detected in this retrospective study.

Conclusion: In conclusion, nurses and cleaning staff were most frequently exposed to work accidents, and they were most frequently detected in areas affiliated with internal medicine units. Work accidents occur most frequently on Fridays and in the period between 8.00-16.00, and they were most frequently seen during patient treatment. Occupational health and safety training for its employees is mandatory in every institution. It can be aimed to protect hospital employees from occupational accidents by determining each unit's own risks, accident causes and precautions according to time periods, and providing more specific training.

Keywords: Occupational accidents, hospital employees, emergency department, needlestick and sharp injuries

INTRODUCTION

The International Labour Organization (ILO) estimates that approximately 2.3 million people worldwide suffer work-related accidents or illnesses annually; That's more than 6,000 deaths every day. It also reports that approximately 340 million work accidents and 160 million work-related diseases occur every year worldwide and is constantly updated by the ILO.[1]

Occupational Health and Safety Implementation Guide in Hospitals,[2] The topics in the guide were prepared as recommendations by the General Directorate of Occupational Health and Safety of the Ministry of Family, Labor, and Social Services of Turkey. It was published in June 2020.[2] In Turkey, a work accident is legally accepted as 'an event that occurs in the workplace or due to the execution of work, causing death or causing physical or mental disability.[3]

Hospitals; Article 56 of the Constitution states that "Everyone has the right to live in a healthy and balanced environment. It is the State and citizens' duty to improve the environment, protect environmental health, and prevent environmental pollution. The state protects everyone's life, physical and mental health to ensure that it continues within; It organizes health institutions to plan and provide services from a single source to achieve cooperation by increasing savings and efficiency in human and material resources. The state fulfills this duty by utilizing and supervising health and social institutions in the public and private sectors. It was established by the provision that "General health insurance may be established by law to provide health services widely." by the public.[4] There are hospitals affiliated with the Ministry of Health and universities, as well as hospitals belonging to private individuals, organizations, and foundations/associations. Due to the different types of organization in each hospital

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structure, difficulties are experienced in the practices to be carried out by the Occupational Health and Safety Law No. 6331, and differences arise between hospitals.[3]

The risks of occupational accidents in hospitals for health professionals and practices in middle-income[5-8] and high-income countries[9-11] have been reported. But, the situation for health professionals in southeastern European countries is reportedly inadequately documented.[12-14]

Healthcare professionals are at serious risk due to the occupational accidents that may occur as a result of percutaneous injuries (needle stick or other sharps injuries), blood or other body fluids splashing into the eyes, nose or mouth.[15]

In the literature, studies on occupational accidents regarding healthcare workers frequently appear and maintain their importance.[16,17] We thought that our study would bring a different perspective because it included both healthcare workers and all non-healthcare workers working in the hospital. As a university hospital with a large campus, it is aimed to shed light on occupational health and safety studies within the framework of Health Quality Standards in the hospital by analyzing the work accidents of hospital employees who apply to our Department of Emergency Medicine.

According to the university's OHS coordinator directive;[18] The Obligation of Staff and Students is emphasized in Article,[14] according to which 'Staff and students' must comply with the rules, prohibitions, decisions, and measures taken by occupational health and safety boards to protect and improve health and safety. Staff and students cooperate with the committees in determining and implementing Occupational Health and Safety measures in the workplace and complying with the measures taken. Staff and students inform the board through their representatives about the decisions taken by the boards or the difficulties they encounter in implementation.

METHODS

The study was carried out with the permission of İstanbul University Cerrahpaşa Clinical Researches Ethics Committee (Date: 19.09.2023, Decision No: 2023/128). All procedures followed were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The purpose of this study is to analyze the occupational accidents experienced by all employees working in a university hospital in Turkey. In addition to the demographic data of the cases, they were grouped according to their titles, professions, accident type and, the accident locations in the hospital. The accident days and time periods were analyzed.

The data of this descriptive research, is collected from all staff (both healthcare workers and non-healthcare workers) of the university hospital, which provides tertiary healthcare services, who applied to the emergency department (ED) due to an occupational accident, were registered between 15 August 2022 and 15 August 2023 and completed the 'Occupational Accident Form' (OAF). Patients who filled out the OAF completely were included. According to the data in the OAF, it was analyzed according to gender, marital status, days in which the patient had an accident, and the time periods in which the accident occurred (08:00-16:00, 16:00-24:00, 24:00-08:00). Occupations at the time of the OA; they were divided into 9 groups as; nurses, cleaning personnel, caregivers, health technicians, physicians, intern doctors, security guards, intern nurses, and technicians. The units they work in are Internal departments, Surgical departments, operating rooms, intensive care units, emergency services, technical workshops/pharmacies, and administrative and educational areas. During the OA their duties were; patient treatment, patient examination/care, treatment preparation and material preparation, blood collection/vascular access, interventional procedures (venous/arterial catheterization, bladder irrigation, suturing, removal of foreign objects from the cornea, paracentesis), building maintenance, repair and installation, resting, security, carrying/storage/placement, cleaning and walking outdoors/stairs. The types of occupational accidents are divided into 8 groups; needlestick and sharp injuries, blunt trauma, strain-sprain, crushing, burn/electric shock, body fluid/drug splash (blood, urine, drug splash), verbal and physical violence (to be beaten and bitten) and fall. Accident Locations are divided into eight groups; Internal Services, Surgical Services, Operating Room, ICU, outdoor, Administrative units, Emergency Service, and warehouse.

The forms of all patients who applied to the ED and were registered between January 1, 2022, and August 15, 2023, and whose 'Occupational Accident Form' (OAF) was found to be complete were examined and analyzed retrospectivel.

Statistical Analysis

An analysis was made by transferring the demographic data of hospital employees who had work accidents, their time zones at the time of the accident, their duties and units, injury incident types and environments to the IBM SPSS 29 program.

Categorical variables in the study were shown with frequency (n) and percentage values. Numerical variables were shown with arithmetic mean, standard deviation, and median value. Statistical analysis of categorical variables was evaluated with Pearson Chi-square and Fisher Chi-square tests. All statistical analyses were performed by taking the p-value as a threshold value of 0.05 within the 95% confidence interval.

RESULTS

According to the accident reporting forms examined in the study; there were no recurrent applications. The number of work accidents is equal to the number of hospital employees exposed to occupational accidents. Of those who had OA, 51.8% (n=59) were female and 48.2% (n=55) were male. According to their marital status, 57% (n=65) were found to be single, and 43% (n=49) were married (Table 1). The most common days spent on OA are Friday with 22.8% (n=26), followed by Tuesday (n=25, 22%), Monday (n=16, 14.0%) and Thursday (n=15, 13.2%). When OA was analyzed according to the time periods in which the accident occurred; 64.9% (n=74) were most frequently in the working hours between 08:00-16:00, 26.3% (n=30) between 16:00-24:00, and the second most frequent and last period was 24:00-08:00. It was found to be in the third place with 8.8% (n=10).

Table 1. Demographic characteristics of hospital employees and occupations, time periods of accidents

	n	%
Gender		
Female	59	51.8
Male	55	48.2
Martial Status		
Single	65	57.0
Married	49	43.0
Occupation		
Nurse	29	25.4
Cleaning staff	27	23.7
Caregiver	14	12.3
Health technician	4	3.5
Physicians	20	17.5
Intern Doctor	10	8.8
Security	3	2.6
Intern Nurse	2	1.8
Technician	5	4.4
Days of Accidents		
Monday	16	14.0
Tuesday	25	22.0
Wednesday	21	18.4
Thursday	15	13.2
Friday	26	22.8
Saturday	8	7.0
Sunday	3	2.6
Time Period (Hour)		
08:00-16:00	74	64.9
16:00-24:00	30	26.3
24:00-08:00	10	8.8

When those who underwent OA were analyzed according to their occupations, nurses came first with 25.4% (n=29), cleaning staff came second with 23.7% (n=27), and doctors came third with 17.5.4% (n=20). Then respectively; It was determined that there were caregivers, intern doctors, technicians, health technicians, security guards, and intern nurses (Table 1). When evaluated according to the units they work in; Internal medicines came first with 32.5% (n=37), followed by Surgery clinics with 27.2% (n=31). In third place is the Emergency Department with 18.4% (n=21).

During the OA they were doing; the most common one was 'patient treatment' with 24.6% (n=28), followed by 'cleaning' with 16.7% (n=19), and third with ' opening a vascular line and blood ' with 14.0% (n=16) (Table 2). When OA injury incident types are examined; needlestick and sharp injuries comes first with 59.6% (n=68), blunt trauma comes second with 16.7% (n=19), and verbal and physical violence comes third with 6.1% (Table 2). The most frequently injured part of the body was the upper extremity with 74.6% (n=85) (Table 2).

No fatal accident was detected in this retrospective study. It was determined that physical and verbal violence occurred in the Department of Dermatology.

Table 2. Characteristics of occupational accidents of hospital employees

	n	%
Duty During the Accident		
Patients' treatments	28	24.6
Medical exam	6	5.3
Preparing treatment/materials	10	8.8
While opening a vascular line and blood	16	14.0
Interventional procedures	8	7.0
Building maintenance and repair	5	4.4
Resting	3	2.6
Security	3	2.6
Carrying/storage/placement	13	11.4
Cleaning	19	16.7
Walking outdoors/stairs	3	2.6
Accident Locations		
Internal Medicine	34	29.8
Surgery Department	25	21.9
Operating Rooms	13	11.4
Intensive Care Unit	9	7.9
Outdoor	6	5.3
Hospital Management	5	4.4
Emergency Department	21	18.4
Storage	1	0.9
Injury Localization		
Head and neck	11	9.6
Face	1	0.9
Thorax	1	0.9
Abdomen/lumbar	1	0.9
Upper extremity	85	74.6
Lower extremity	1	0.9
Vertebrae	12	10.4
Verbal violence	2	1.8
Types of Occupational Accidents		
Needlestick and sharp injuries	68	59.6
Blunt trauma	19	16.7
Sprains and strains	4	3.5
Crush	5	4.4
Burns/Elektrical shock	5	4.4
Bodily fluids exposure/medication splashing	4	3.5
Verbal and physical violence	7	6.1
Fall	2	1.8

DISCUSSION

World Health Organization defines employee safety as "maximizing the physical, mental and social condition of working individuals, taking and implementing protective measures to minimize the risks that may occur to the health of the employee, and suiting the employee's job and the job to the employee".[16]

In Turkey, a work accident is legally accepted as 'an event that occurs in the workplace or due to the execution of work, causing death or causing physical or mental disability'.[3] As a university hospital with a large campus and approximately 5 thousand employees, it was aimed to shed light on occupational health and safety studies within the framework of Health Quality Standards by analyzing occupational accidents in the hospital.

It is reported that the most common occupational accidents for healthcare personnel are needlestick and sharp injuries, exposure to blood and body fluids, musculoskeletal injuries, stress, and violence.[17,19] In particular, sharp object injuries rank first among work accidents occurring in hospitals.[17,19-21]

In a study reaching 1047 healthcare workers, evaluating the occupational accidents reported by healthcare personnel working in a university hospital, 64.4% of the healthcare workers stated that they had experienced a needlestick and sharp injury at least once in their professional life, and 64.4% reported blood/stab injury. They found that they stated that they were exposed to body fluids.[22] In our study, although all hospital employees were involved, the most common OA was found to be needlestick and sharp injuries. Occupational health and safety training for hospital employees is mandatory in every institution. Perhaps we can protect ourselves from work accidents by increasing the frequency of these trainings or by determining the risks of each unit individually and providing training.

Consistent with the analysis made according to the injury areas in our study, the most common upper extremity (n=85, 74.6%) injury was found. Since in our study, all upper extremity regions such as 'hand, arm, finger' were grouped as a single injury localization. İnci et al.'s[23] study carried out as a result of a work accident, 19% of the personnel suffered injuries in the foot-leg region, 47% in the hand-arm region, 8% in the finger region, and 8% in the eye area. They found that they were injured in the face and face area, and 17% were injured in various parts of the body (back, waist, shoulder, ear, whole body, ribs, chest). These results suggest that the importance of correct and regular use of personal protective equipment increases. And also, increased inspections may be required along with occupational health and safety training.

In a study by Monteiro et al.[24] based on the Occupational Accident Reports (OAR) of 3 hospitals in Brazil, it was determined that 251 workers out of a total of 1,117 workers were injured in work accidents between 2000 and 2005. The injured workers worked in healthcare, nursing, and support services (kitchen, laundry, cleaning, and maintenance). According to days, it is most common on Tuesday, and according to work shifts, it is most common between 07:00-19:00. In our study, although we found it to be most common on Friday (22.8%), it was followed by Tuesday (22.0%). Additionally, in our study, we determined that the most common time period was 08:00-16:00. There may be a decrease in attention as it is the last day of the business days of the week. Weekdays and first shifts of the day are always busier in hospitals.[24] Both the patient crowd and the number of outpatient clinics and surgeries are higher. This may explain the fact that in our study, the majority of occupational accidents occurred on weekdays and during the 8.00-16.00 period.

Appiagyei et al.[25] In the study, in the analysis of OA according to professional groups, it was determined that nurses ranked first (78%), followed by doctors (9.4%), laboratory technicians (5.7%) and finally non-medical personnel (6.9%). Many studies[17,26,27] have shown literature showing that the majority of healthcare workers exposed to work accidents are nurses. In our study, nurses were found to be in the first place (25.4%), but unlike other professional groups, no significant difference was observed. We can attribute this to the fact that nursing services in our country/hospital keep their work shifts short and carry out in-house training meticulously.

In a study of a public hospital by Diker et al.[17] although the units collected under the heading of other units were found more frequently in total, where 57% were women, the majority of them were nurses, when examined separately, the most common cases were in intensive care units, followed by emergency departments. and operating rooms were observed. In the same study, a needlestick and sharp injuries rate of 81% was detected. According to time periods, work accidents were most frequently found during day shifts, consistent with our study. In this study,[21] OA (18.4% according to accident locations groups) occurred in the emergency department. If we discuss occupational accident exposures within the emergency department itself; It was determined that there were 14 doctors, 4 nurses, 2 cleaning staff, and 1 security guard. Only one of the 21 people was married and that was the cleaning staff. It was determined that work accidents occurred most frequently during patient treatment and the

most common was needlesticking. In the survey study conducted by Serinken et al.[6] on emergency service workers, they found the frequency of needlestick and harps injuries in the emergency department to be 86.3%. The most common cause was found to be a syringe needle. The most common accident location in the emergency department was reported as the resuscitation room. Since the emergency department has a separate dynamic and cycle within itself, we can conclude that healthcare professionals do not act in accordance with occupational safety during rapid interventions on patients in acute situations. And also we should not forget the patient crowd and stress factor in the emergency department.

The most important limitation of this study is that it was in only one center. Due to this being a retrospective study, patients could not be interviewed one-on-one while filling out the OAF.

CONCLUSION

The findings of this study; nurses and cleaning staff were most frequently exposed to work accidents, and they were most frequently detected in areas affiliated with internal medicine units. Work accidents occur most frequently on Fridays and in the period between 8.00-16.00, and they were most frequently seen during patient treatment. Occupational health and safety training for its employees is mandatory in every institution. It can be aimed to protect hospital employees from work accidents by increasing the frequency of these trainings and by determining the risks of each unit separately and providing training.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of İstanbul University Cerrahpaşa Clinical Research Ethics Committee (Date: 19.09.2023, Decision No: 2023/128).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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